

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions, and listings, of claims in the captioned patent application:

Listing of Claims:

Claims 1-11 (Cancelled).

12. (Currently Amended) A system for operating a rechargeable battery, said system comprising:

means for charging said rechargeable battery to a predetermined maximum voltage;
~~maintaining current by delivering a predetermined current to said rechargeable battery until said rechargeable battery is charged to a predetermined maximum voltage;~~

~~means for maintaining voltage by delivering decreasing step-function current to said rechargeable battery to maintain the maximum voltage until said delivered current reaches a predetermined minimum current;~~

~~means for determining a first dynamic charging range for the cyclical current to be delivered to said rechargeable battery for a first plurality of charging cycles by said current maintaining means and said voltage maintaining means during a cycle; and~~

~~means for correcting calculating an offset error for said determining means when the determined current is not being delivered to said while there is no more than a relatively low load on the rechargeable battery.~~

13. (Currently Amended) The system according to claim 44 ~~claim 12~~, wherein said voltage ~~maintaining the charging means is configured to deliver the decreasing charging currents after charging the~~ engages after said current maintaining means charges said rechargeable battery to said predetermined maximum voltage using the predetermined charging current.

14. (Currently Amended) The system according to claim 12, wherein said determining means comprises means for integrating a current signal proportional to an amount of current delivered to said rechargeable battery.

15. (Currently Amended) The system according to claim 44 ~~claim 12~~, wherein said predetermined charging current and said predetermined minimum charging current are different.

Claim 16 (Canceled).

17. (Currently Amended) The system according to claim 44 ~~claim 12~~, wherein said predetermined charging current may be dynamically adjusted based on parameters of said rechargeable battery.

Claim 18 (Canceled).

19. (Currently Amended) The system according to claim 44 ~~claim 12~~, wherein said predetermined minimum charging current may be dynamically adjusted based on parameters of said rechargeable battery.

20. (Original) The system according to claim 12, wherein said predetermined maximum voltage may be dynamically adjusted based on parameters of said rechargeable battery.

21. (Original) The system according to claim 12, wherein said predetermined maximum voltage is less than 57.6 volts.

22. (Currently Amended) The system according to claim 44 ~~claim 12~~, wherein said predetermined minimum charging current is less than 1 ampere.

23. (Original) The system according to claim 12, wherein said rechargeable battery is used for an implantable medical device.

24. (Original) The system according to claim 23, wherein said implantable medical device is a prosthetic hearing implant.

25. (Original) The system according to claim 24, wherein said prosthetic hearing implant is a totally implantable prosthetic hearing implant.

Claims 26-29 (Cancelled).

30. (Currently Amended) The battery charger according to claim 39 ~~claim 29~~, wherein said ~~measuring testing~~ circuit is further configured to compensate for any error ~~any~~ offset error of the measuring device while said rechargeable battery source is isolated from said device.

31. (Currently Amended) The battery charger according to claim 39 ~~claim 29~~, wherein said parametric data includes ~~cumulative charge~~ a cumulative amount of charge delivered to the rechargeable battery during the first cycle.

32. (Currently Amended) The battery charger according to claim 39 ~~claim 29~~, wherein said electronic device is an implantable medical device.

33. (Previously Presented) The battery charger according claim 32, wherein the implantable medical device is a receiver/stimulator unit of prosthetic hearing implant system.

Claims 34-38 (Cancelled).

39. (New) A battery charger for a rechargeable battery of an electronic device, the battery charger comprising:

- a charge controller configured to charge the rechargeable battery during a first cycle; and
- a measuring circuit configured to measure one or more parametric data during the first cycle, and calculate an offset error of the measuring circuit while no load is placed on the rechargeable battery.

40. (New) The battery charger of claim 39, further comprising:

an auxiliary power source configured to power the electronic device independently of the rechargeable battery, and configured to power the measuring circuit independently of the rechargeable battery.

41. (New) The battery charger of claim 39, wherein the measuring circuit comprises:

a differential amplifier;

an integrator configured to receive from the differential amplifier a current signal proportional to current flowing into or out of the rechargeable battery; and

a detection block configured to receive an output voltage from the integrator, and configured to output a detection signal indicating that a quantized unit of charge has been processed.

42. (New) The battery charger of claim 41, wherein the measuring circuit further comprises:

a digital logic circuit configured to receive the detection signal from the detection block, maintain a count of the number of detection signals received, and generate an asynchronous interrupt after receiving a predetermined number of detection signals.

43. (New) The battery charger of claim 42, wherein the measuring circuit further comprises:

a microcontroller configured to receive the asynchronous interrupt, calculate the offset error, and compensate for the offset error.

44. (New) The system of claim 12, wherein the charging means comprises:

means for delivering a predetermined charging current to the rechargeable battery until the rechargeable battery is charged to the predetermined maximum voltage; and

means for successively delivering each of a plurality of decreasing charging currents to the rechargeable battery until the decreasing charging currents reach a predetermined minimum charging current, wherein each of the plurality of decreasing charging currents is delivered to the rechargeable battery until the rechargeable battery is charged to the predetermined maximum voltage.

45. (New) The system of claim 12, wherein the first dynamic charging range comprises first upper and lower charge values for the rechargeable battery, wherein the first dynamic charge range is calculated based on a cumulative amount of charge delivered to the rechargeable battery during a first initial cycle,

wherein the charging means is configured to charge the rechargeable battery until the cumulative amount of charge equals the first upper charge value during each of the plurality of first charging cycles.

46. (New) The system of claim 45, wherein the determining means is configured to determine a second dynamic charging range for the rechargeable battery for a second plurality of charging cycles,

wherein the second dynamic charging range comprises second upper and lower charge values for the rechargeable battery, wherein the second dynamic charge range is calculated based on a cumulative amount of charge delivered to the rechargeable battery during a second initial cycle after the plurality of first charging cycles, and

wherein the charging means is configured to charge the rechargeable battery until the cumulative amount of charge equals the second upper charge value during each of the plurality of second charging cycles.

47. (New) A battery charger for a rechargeable battery of an electronic device, the battery charger comprising:

a charge controller configured to charge the rechargeable battery during a first cycle; and
a measuring circuit configured to measure one or more parametric data during the first cycle, and calculate an offset error of the measuring circuit while no more than a relatively low load is placed on the rechargeable battery.

48. (New) The battery charger of claim 47, further comprising:

an auxiliary power source configured to power the electronic device independently of the rechargeable battery, and configured to power the measuring circuit independently of the rechargeable battery.

49. (New) The battery charger of claim 47, wherein the measuring circuit comprises:

a differential amplifier;

an integrator configured to receive from the differential amplifier a current signal proportional to current flowing into or out of the rechargeable battery; and

a detection block configured to receive an output voltage from the integrator, and configured to output a detection signal indicating that a quantized unit of charge has been processed.

50. (New) The battery charger of claim 49, wherein the measuring circuit further comprises:

a digital logic circuit configured to receive the detection signal from the detection block, maintain a count of the number of detection signals received, and generate an asynchronous interrupt after receiving a predetermined number of detection signals.

51. (New) The battery charger of claim 50, wherein the measuring circuit further comprises:

a microcontroller configured to receive the asynchronous interrupt, calculate the offset error, and compensate for the offset error.

52. (New) The battery charger according to claim 47, wherein said measuring circuit is further configured to compensate for any offset error of the measuring device.

53. (New) The battery charger according to claim 47, wherein said electronic device is an implantable medical device.

54. (New) The battery charger according claim 52, wherein the implantable medical device is a receiver/stimulator unit of prosthetic hearing implant system.

55. (New) The battery charger according to claim 47, wherein said parametric data includes a cumulative amount of charge delivered to the rechargeable battery during the first cycle.

56. (New) The system according to claim 12, wherein the means for calculating the offset error calculates the offset error for said determining means while there is no load on the rechargeable battery.